

<b>INSTITUTE</b>	<b>FACULTY OF TECHNOLOGY</b>
<b>PROGRAM</b>	<b>BACHELOR OF TECHNOLOGY (COMPUTER ENGINEERING)</b>
<b>SEMESTER</b>	<b>5</b>
<b>COURSE TITLE</b>	<b>PROGRAMMING FOR ANDROID</b>
<b>COURSE CODE</b>	<b>01CE0513</b>
<b>COURSE CREDITS</b>	<b>3</b>

**Objective:**

- 1 This course focuses on learning and applying the fundamentals of Android Programming to build mobile applications by learning the concepts of UI, Data storage along with the steps to publish the application once it is ready
- 2 This course focuses on learning and applying the fundamentals of Android Programming to build mobile applications by learning the concepts of UI, Data storage along with the steps to publish the application once it is ready.

**Course Outcomes:** After completion of this course, student will be able to:

- 1 Understand the architecture, components, and lifecycle of Android applications including activities, intents, and fragments.
- 2 Develop user interfaces using layouts, material design components, and various event-driven UI elements in Android Studio.
- 3 Analyze and differentiate between local data storage methods including file handling and SQLite databases in Android.
- 4 Evaluate the efficiency and usability of Android applications by testing with sensors, CRUD operations, API integration, and debug tools.
- 5 Design and develop a complete Android application

**Pre-requisite of course:**NA

**Teaching and Examination Scheme**

<b>Theory Hours</b>	<b>Tutorial Hours</b>	<b>Practical Hours</b>	<b>ESE</b>	<b>IA</b>	<b>CSE</b>	<b>Viva</b>	<b>Term Work</b>
2	0	2	50	30	20	25	25

<b>Contents : Unit</b>	<b>Topics</b>	<b>Contact Hours</b>
1	<b>Introduction to Android</b> Introduction to Android, Android System with Architecture, Android Architecture, Development with Android – Platforms, Tools, Versions, Setup Android Environment, Dalvik Debug Monitor Server (DDMS), , Logcat, Emulator Control, Device Control, Work with ADB, Connect Real Devices, Execute Application on Real Device, Say Hello to Android Application, Building Blocks of Android Application, Work with Activity, Activity Lifecycle, Work with Activity, Activity Lifecycle	9
2	<b>Android Activities and UI Design</b> Create Android UI, Working with Layout, Create Custom Layouts, with UI Components and Events, Material Design Toolbar, Tab Layout, Recycler View and Card View, Android Menus	7
3	<b>Advanced UI</b> Action Bar and Options Menus, Enabling Ancestral Navigation, An Alternative Menu Item, Saving and Loading Local Files, Context Menu Resource, Floating Context Menu, Contextual Action Mode	7
4	<b>Database and API</b> Introduction to SQLite, SQLite Connectivity, CRUD operations, API in android application	8
5	<b>Sensors and Publishing Android App</b> Introduction to usage of different sensors in application, Preparing for publishing, Signing and preparing the graphics, Publish your Application	4
<b>Total Hours</b>		<b>35</b>

### Suggested List of Experiments:

<b>Contents : Unit</b>	<b>Topics</b>	<b>Contact Hours</b>
1	<b>Practical 1</b> Install Android Studio with Latest Configuration in your System.	2
2	<b>Practical 2</b> Designing UI for Android Application.	2
3	<b>Practical 3</b> Designing UI for Android Application.	2
4	<b>Practical 4</b> Building “Hello World” application.	2
5	<b>Practical 5</b> Demonstration of Android Activity and Fragment life cycle.	2
6	<b>Practical 6</b> Create android application using Toast and Recycler view.	2
7	<b>Practical 7</b> Develop an application with Broadcast Receiver.	2
8	<b>Practical 8</b> Create an android application using File Handling.	2

### Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
9	<b>Practical 9</b> Create an application to CRUD operations using SQ Lite.	2
10	<b>Practical 10</b> Create an application to CRUD operations using SQ Lite.	2
11	<b>Practical 11</b> Develop an android application using API.	2
12	<b>Practical 12</b> Develop an android application using API.	2
13	<b>Practical 13</b> Develop Mini Project.	2
14	<b>Practical 14</b> Develop Mini Project.	2
<b>Total Hours</b>		<b>28</b>

### Textbook :

- 1 Android Application Development Black Book , Pradeep Kothari, Dream Tech, 2020

### References:

- 1 Android for Absolute Beginners, Android for Absolute Beginners, Grant Allen, Apress, 2021
- 2 Android Programming for Beginners, Android Programming for Beginners, John Horton, Packt Publishing, 2021
- 3 Professional Android, Professional Android, Reto Meier, Ian Lake, Wiley, 2018
- 4 Head First Android Development, Head First Android Development, 5. G. Dawn, G.David , O'Reilly Media, 2017

### Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
10.00	35.00	50.00	5.00	0.00	0.00

### Instructional Method:

- 1 The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
- 2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.

**Instructional Method:**

- 3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
- 4 Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.

**Supplementary Resources:**

- 1 <https://google-developer-training.github.io/android-developer-fundamentals-course-concepts-v2/>
- 2 <https://developer.android.com/>
- 3 <https://nptel.ac.in/courses/106106147>
- 4 <https://github.com/PradeepKothari/Android-Blackbook>